TABLE 1. Typical components and sequence of components in medium and large sweetpotato packing lines.

Medium (Low Volume) Packing Line	Large (High Volume) Packing Line
dump tank	dump tank
wash/brush	wash/brush
eliminator	eliminator
grading	grading
fungicide application	**wash/brush***
sizer	fungicide application
grading	sizer 1-expanding pitch type
box fill	first grading
	wax/brush*
	sizer 2-electronic*
	final grading*
	box fill

*Bold text indicates items that differ from medium packing lines.

Disease development in storage. By far, postharvest diseases account for the greatest loss in stored sweetpotatoes. In extreme instances, decay losses can run nearly 100 percent. The occurrence of postharvest diseases tends to vary from year to year. Outbreaks occur when pathogens are given an opportunity to proliferate. Many of the diseases that affect sweetpotatoes in storage are first established in the field or on planting material such as scurf (Figure 51). Other postharvest disease organisms are wind- or soil-borne as spores and are essentially ubiquitous (such as Rhizopus soft rot).

Postharvest diseases may be caused by fungi, bacteria, or viruses, although fungi are more common in sweetpotatoes. Most viruses do not cause serious postharvest diseases, although symptoms from field infections may be first noticed after harvest (as with russet crack) or may develop in storage (internal cork). Similarly, root knot nematodes infect roots in the field, and the resulting cracking may be noticed during grading and packing (Figures 54 and 55).

Control depends on understanding disease-causing organisms, the conditions that promote their occurrence, and the factors that affect their capacity to cause losses. Additionally, following approved cultural practices in the field can significantly reduce many of these diseases. Sweetpotatoes should be inspected as they are harvested. Leave roots with indications of established disease (lesions) or obvious defects such as growth cracks or excessive skinning in the field. Gentle handling and minimization of environmental stresses can substantially reduce the level of postharvest disease. The management of specific diseases is discussed in Appendix 1.

Packing for Quality

The packing of sweetpotatoes is an industrial operation that should be dedicated to delivering the highest quality product to the consumer. The current market demands uniformity in appearance in both color and size (see cover photo bottom), which necessitates long and complicated packing lines. Unfortunately, long packing lines can increase the opportunity for skinning, bruises, cuts, and broken ends that detract from appearance and increase the possibility for disease development.

In general, good packing-line design strikes a balance between gentle, yet efficient, handling of the sweetpotatoes. Indications of the need to alter an existing packing line include high labor and energy costs, bottlenecks, congestion, worker complaints, accidents, and product damage such as excessive skinning, excessive loss to disease, and large piles of broken ends on the floor below problem areas.

An industry survey of sweetpotato packinghouses in North Carolina and Louisiana from 2004 to 2006 revealed similarities among layouts and associated trouble spots (Tables 1 through 5). Table 1 describes the typical components and layouts for mid- and large-size packing lines seen in both states. An instrumented impact-recording device (SmartSpud, Sensor Wireless, Canada) was used on packing lines in both states. This device measures the force of impacts (measured as a unit of force called a *g*; 1 g = 9.81

Figure 17. Instrumented impact recording device used to measure impacts on packing lines. Right: fresh sweetpotato; middle: molded urethane casing with accelerometer inside; left: handheld computer with antenna for receiving signal from accelerometer and recording impacts. (PHOTO BY B. EDMUNDS)